APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,556	12/17/2001	Steven R. Corman	130588.00057	2663

26707 7590 02/02/2006		

QUARLES & BRADY LLP
RENAISSANCE ONE
TWO NORTH CENTRAL AVENUE
PHOENIX, AZ 85004-2391

EXAMINER
WOZNIAK, JAMES S

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 02/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	**Applicant(s)**
Office Action Summary	10/023,556	CORMAN ET AL.
	Examiner	**Art Unit**	
	James S. Wozniak	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 November 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,7-12,14-31,33 and 35-48* is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7 and 16-27* is/are allowed.

6)☒ Claim(s) *1-3,5,8-12,15,28-31 and 36-48* is/are rejected.

7)☒ Claim(s) *14,35 and 37-48* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   In response to the office action from 8/25/2005, the applicant has submitted an amendment, filed 11/25/2005, amending claims 1, 5, 7-8, 16-18, 28, and 37-39, while canceling claims 4, 6, 13, 32, and 34 and arguing to traverse the art rejection based on the amended claim limitations *(Amendment, Pages 14-15)*. Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.

2.   Due to amended claims 16-18 and 37-39, the examiner has withdrawn the previous claim objections.

Response to Arguments

3.   Applicant's arguments with respect to the rejected claims have been fully considered but they are not persuasive for the following reasons:

With respect to **Claims 1, 8 and 28**, the applicant argues that Hearst *("Automated Discovery of WordNet Relations," 1998)* fails to teach "betweenness centrality as contemplated in Applicants' specification" *(Amendment, Page 14-16)*. In response to the applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the

features upon which applicant relies *(i.e., the specific process of "betweenness centrality" as used in determining word relationships)* are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Also, the applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

As previously noted, the specific process of "betweenness centrality" has not been described in any of the aforementioned claims. Thus, the examiner has interpreted the process of determining word relations to a *central common or linking term (hyponym) in a* hyponym link determination process as taught by Hearst as the claimed "betweenness centrality" ("authors" example, Page 4, Section 2.1; Pages 8-13, Section 3) because the central term, or hyponym, is utilized in determining the influence *between particular hypernym words* in describing the *central or hyponym* term *(Pages 9-13)*.

The applicant further argues that Hearst fails to teach the linking of sequentially occurring noun phrases. In response, the examiner points out that Hearst provides an example of linking noun phrases sequentially occurring within a sentence as hyponym-hypernym phrase pairs *(Pages 7-9)* in a WordNet application.

Claims 2-3, 5, 9-12, 14-15, 29-31, 33, 35 and 36 are argued as further limiting a rejected independent claim *(Amendment, Page 15)*, and thus, also remain objected to or rejected.

Claim Objections

4.   **Claims 37-48** are objected to because of the following informalities:

Claims 37-48 are duplicates of claims 16-27 and should be canceled.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
sale in this country, more than one year prior to the date of application for patent in the United States.

6.   **Claims 1, 3, 5, 8, 10-13, 15, 28-29, 31, 33, and 36** are rejected under 35 U.S.C. 102(b) as

being anticipated by Hearst *("Automated Discovery of WordNet Relations," 1998)*.

With respect to **Claim 1**, Hearst discloses:

Dividing the text into sentences *(sentence extraction, Pages 6-7, Section 2.3)*;

Parsing the sentences into one or more noun phrases *(noun phrase parsing, Pages 6-7,*

Section 2.3);

Converting words in the noun phrases into networks of word relationships by linking

sequentially occurring noun phrases within each sentence *("authors" example, Page 4, Section*

2.1; hyponym-hypernym word relationships, Pages 8-13, Section 3; and noun hierarchy, Page 9,

Section 3);

Analyzing the networks of word relationship to determine the influence of each word by utilizing betweenness centrality *(analyzing the influence of a hypernym in defining a central hyponym term as a useful link in a WordNet application, Pages 8-13, 16-17, Section 3).*

With respect to **Claim 3**, Hearst discloses recording nouns that occur in plural form in a singular form *(Page 8, Section 2.3).*

With respect to **Claim 5**, Hearst further teaches linking possible pairs of words in a noun phrase having 3 or more words *("authors" example, Page 4, Section 2.1).*

With respect to **Claim 8**, Hearst discloses:

Dividing the text into sentences *(sentence extraction, Pages 6-7, Section 2.3);*

Parsing the sentences into one or more noun phrases *(noun phrase parsing, Pages 6-7, Section 2.3);*

Converting words in the noun phrases into networks of word relationships *(noun hierarchy, Page 9, Section 3);*

Analyzing the word relationship networks to determine the influence of each word by utilizing betweenness centrality *(analyzing the influence of a hypernym in defining a central hyponym term as a useful link in a WordNet application, Pages 8-13, 16-17, Section 3);* and

Applying the analyzed networks to perform a specific language task *(utilizing WordNet for natural language processing and information retrieval, Page 1, Section 1).*

Claims 10-12 contain subject matter similar to Claims 1, 3, and 5, and thus, are rejected for the same reasons.

With respect to **Claim 15**, Hearst discloses utilizing WordNet for information retrieval *(Page 1, Section 1).*

With respect to **Claim 28**, Hearst discloses:

Compartmentalizing the text into defined units *(sentence extraction, Pages 6-7, Section 2.3)*;

Categorizing the defined units by:

Parsing the units into one or more noun phrases each comprising one or more words *(noun phrase parsing, Pages 6-7, Section 2.3)*;

Converting words in the noun phrases into networks of word relationships by linking sequentially occurring noun phrases within a defined unit *("authors" example, Page 4, Section 2.1; hyponym-hypernym word relationships, Pages 8-13, Section 3; and noun hierarchy, Page 9, Section 3)*;

Analyzing the word relationship networks to determine the structural influence of each word by utilizing betweenness centrality *(analyzing the influence of a hypernym in defining a central hyponym term as a useful link in a WordNet application, Pages 8-13, 16-17, Section 3)*; and

Applying the analyzed networks to perform a specific language task *(utilizing WordNet for natural language processing and information retrieval, Page 1, Section 1)*.

With respect to **Claim 29**, Hearst discloses the process of sentence extraction as applied to Claim 28.

Claims 31 and 33 contain subject matter similar to Claims 3 and 5, respectively, and thus, are rejected for the same reasons.

With respect to **Claim 36**, Hearst discloses utilizing WordNet for information retrieval *(Page 1, Section 1)*.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

8.   **Claims 2, 9, and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Hearst in view of Budzinski et al *(U.S. Patent: 5,715,468)*.

With respect to **Claims 2, 9, and 30**, Hearst teaches the method for analyzing text

relationships as applied to Claims 1, 8, and 28. Hearst does not specifically suggest substituting

identified nouns for pronouns within a noun phrase, however Budzinski teaches such a function

(Col. 50, Lines 12-35).

Hearst and Budzinski are analogous art because they are from a similar field of endeavor

in text processing utilizing parsing. Thus, it would have been obvious to a person of ordinary

skill in the art, at the time of invention, to modify the teachings of Hearst with the pronoun

substitution method taught by Budzinski in order to provide additional meaning for pronouns in

text processing *(Budzinski, Col. 50, Lines 12-35)*.

Allowable Subject Matter

9.   **Claims 7 and 16-27** are allowable over the prior art of record.

10.   **Claims 14 and 35** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11.   The following is an examiner's statement of reasons for allowance:

With respect to **Claim 7**, the prior art of record fails to explicitly teach or fairly suggest a method for categorizing input text by parsing the text into noun phrases that provide word relationships *(nouns, verbs, pronouns, determiners, etc.)*, linking sequentially occurring noun phrases to form a word relationship network, and calculating the relative structural influence or flow through the particular network element corresponding to each word in the word relationship network by utilizing the equation in claims 7, 14, and 35. The calculated influences are then utilized in the word pair resonance calculation shown on page 15 of the specification, which measures word similarity between two text documents in order to achieve the text categorization. Although Hearst teaches analyzing word influence, Hearst does not utilize the equation in claims 7, 14, and 35 or a derivative thereof to determine the influence of a word in a word relationship network or the word pair resonance equation shown in page 15 to accomplish text categorization.

With respect to **Claim 16**, the prior art of record fails to explicitly teach or fairly suggest a method for categorizing input text by calculating word resonance, or similarity, between two text documents by utilizing the equation in claim 16 *(also found on page 14 of the specification)*, wherein the equation requires the parsing of text into noun phrases that provide word relationships *(nouns, verbs, pronouns, determiners, etc.)*, the linking of sequentially occurring

noun phrases to form a word relationship network, and word influences calculated according to the equation of claim 7 *(also shown on page 13 of the specification)*.

With respect to **Claim 18**, the prior art of record fails to explicitly teach or fairly suggest a method for categorizing input text by calculating word pair resonance, or similarity, between two text documents by utilizing the equation in claim 18 *(also found on page 15 of the specification)*, wherein the equation requires the parsing of text into noun phrases that provide word relationships *(nouns, verbs, pronouns, determiners, etc.)*, the linking of sequentially occurring noun phrases to form a word relationship network, and word influences calculated according to the equation of claim 7 *(also shown on page 13 of the specification)*.

Claims 17 and 19-27 further limit allowable independent claims, and thus, are also allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

12.   The following is a statement of reasons for the indication of allowable subject matter:

With respect to **Claims 14 and 35**, the prior art of record fails to explicitly teach or fairly suggest a method for categorizing input text by parsing the text into noun phrases that provide word relationships *(nouns, verbs, pronouns, determiners, etc.)*, linking sequentially occurring noun phrases to form a word relationship network, and calculating the relative structural influence or flow through the particular network element corresponding to each word in the word

relationship network by utilizing the equation in claims 14 and 35. The calculated influences are

then utilized in the word pair resonance calculation shown on page 15 of the specification, which

measures word similarity between two text documents in order to achieve the text categorization.

Although Hearst teaches analyzing word influence, Hearst does not utilize the equation in claims

14 and 35 or a derivative thereof to determine the influence of a word in a word relationship

network or the word pair resonance equation shown on page 15 to accomplish text categorization.

Conclusion

13.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

14.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure:

Chang et al *("A Hybrid Approach to Object Library Classification and Retrieval,"*
1995)- teaches a method for classifying text according to the significance of index words.

15.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632.
The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the
organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent
Application Information Retrieval (PAIR) system. Status information for published applications
may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
applications is available through Private PAIR only. For more information about the PAIR
system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR
system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WAYNE YOUNG
SUPERVISORY PATENT EXAMINER

James S. Wozniak
1/5/2006